

WHAT IS CLAIMED IS:

1. An acoustic wave apparatus comprising:
a piezoelectric substrate mainly containing lithium tantalate; and
an interdigital transducer including a conductor formed on said substrate,
wherein a surface rotated in a range of 34° to 41° from a crystal Y axis around a crystal X axis of the lithium tantalate is set as a surface of said substrate, a standardized electrode thickness (h/λ) obtained by standardizing a thickness h of an electrode finger constituting said interdigital transducer by a wavelength λ of a surface acoustic wave is set in a range of 0.01 to 0.05, and a duty ratio (w/p) of the electrode finger decided based on a width w and an arraying cycle p of the electrode finger is set to the value ranging from 0.6 to just below 1.0.

2. An acoustic wave apparatus comprising:
a piezoelectric substrate mainly containing lithium tantalate; and
an interdigital transducer including a conductor formed on said substrate,
wherein a surface rotated in a range of 35° to 42° from a crystal Y axis around a crystal X axis of the lithium tantalate is set as a surface of said substrate, a standardized electrode thickness (h/λ) obtained by standardizing a thickness h of an electrode finger constituting said interdigital transducer by a wavelength λ of a surface acoustic wave is set in a range of 0.05 to 0.075, and a duty ratio (w/p) of the electrode finger decided based on a width w and an arraying cycle p of the electrode is set to the value ranging from 0.6 to just below 1.0.

3. An acoustic wave apparatus comprising:

a piezoelectric substrate mainly containing lithium tantalate; and

an interdigital transducer including a conductor formed on said substrate,

wherein a surface rotated in a range of 36° to 43° from a crystal Y axis around a crystal X axis of the lithium tantalate is set as a surface of said substrate, a standardized electrode thickness (h/λ) obtained by standardizing a thickness h of an electrode finger constituting said interdigital transducer by a wavelength λ of a surface acoustic wave is set in a range of 0.075 to 0.1, and a duty ratio (w/p) of the electrode finger decided based on a width w and an arraying cycle p of the electrode finger is set to the value ranging from 0.6 to just below 1.0.

4. An acoustic wave apparatus comprising:

a piezoelectric substrate mainly containing lithium tantalate;

an interdigital transducer including a conductor formed on said substrate; and

a reflector including a conductor formed on said substrate,

wherein a surface rotated in a range of 34° to 41° from a crystal Y axis around a crystal X axis of the lithium tantalate is set as a surface of said substrate, a standardized electrode thickness (h/λ) obtained by standardizing a thickness h of an electrode finger constituting at least a part of said reflector by a wavelength λ of a surface acoustic wave is set in a range of 0.01 to 0.05, and a duty ratio (w/p) of the electrode finger decided based on a width w and an arraying cycle p of the electrode finger is set to the value ranging from 0.6 to just below 1.0.

5. An acoustic wave apparatus comprising:

a piezoelectric substrate mainly containing lithium tantalate;

an interdigital transducer including a conductor formed on said substrate; and

a reflector including a conductor formed on said substrate,

wherein a surface rotated in a range of 35° to 42° from a crystal Y axis around a crystal X axis of the lithium tantalate is set as a surface of said substrate, a standardized electrode thickness (h/λ) obtained by standardizing a thickness h of an electrode finger constituting at least a part of said reflector by a wavelength λ of a surface acoustic wave is set in a range of 0.05 to 0.075, and a duty ratio (w/p) of the electrode finger decided based on a width w and an arraying cycle p of the electrode finger is set to the value ranging from 0.6 to just below 1.0.

6. An acoustic wave apparatus comprising:

a piezoelectric substrate mainly containing lithium tantalate;

an interdigital transducer including a conductor formed on said substrate; and

a reflector including a conductor formed on said substrate,

wherein a surface rotated in a range of 36° to 43° from a crystal Y axis around a crystal X axis of the lithium tantalate is set as a surface of said substrate, a standardized electrode thickness (h/λ) obtained by standardizing a thickness h of an electrode finger constituting at least a part of said reflector by a wavelength λ of a surface acoustic wave is set in a range of 0.075 to 0.1, and a duty ratio (w/p) of the electrode finger decided based on a width w and an arraying cycle p of the electrode finger is set to the value ranging from 0.6 to just below 1.0.

7. An acoustic wave apparatus comprising:
a piezoelectric substrate mainly containing lithium tantalate; and
an interdigital transducer including a conductor formed on said substrate,
wherein a surface rotated in a range of 34° to 41° from a crystal Y axis around a crystal X axis of the lithium tantalate is set as a surface of said substrate, a standardized electrode thickness (h/λ) obtained by standardizing a thickness h of an electrode finger constituting a part of said interdigital transducer by a wavelength λ of a surface acoustic wave is set in a range of 0.01 to 0.05, and a duty ratio (w/p) of the electrode finger decided based on a width w and an arraying cycle p of the electrode finger is set to the value ranging from 0.6 to just below 1.0.

8. An acoustic wave apparatus comprising:
a piezoelectric substrate mainly containing lithium tantalate; and
an interdigital transducer including a conductor formed on said substrate,
wherein a surface rotated in a range of 35° to 42° from a crystal Y axis around a crystal X axis of the lithium tantalate is set as a surface of said substrate, a standardized electrode thickness (h/λ) obtained by standardizing a thickness h of an electrode finger constituting a part of said interdigital transducer by a wavelength λ of a surface acoustic wave is set in a range of 0.05 to 0.75, and a duty ratio (w/p) of the electrode finger decided based on a width w and an arraying cycle p of the electrode finger is set to the value ranging from 0.6 to just below 1.0.

9. An acoustic wave apparatus comprising:
a piezoelectric substrate mainly containing lithium

tantalate; and

an interdigital transducer including a conductor formed on said substrate,

wherein a surface rotated in a range of 36° to 43° from a crystal Y axis around a crystal X axis of the lithium tantalate is set as a surface of said substrate, a standardized electrode thickness (h/λ) obtained by standardizing a thickness h of an electrode finger constituting a part of said interdigital transducer by a wavelength λ of a surface acoustic wave is set in a range of 0.075 to 0.1, and a duty ratio (w/p) of the electrode finger decided based on a width w and an arraying cycle p of the electrode finger is set to the value ranging from 0.6 to just below 1.0.

10. An acoustic wave apparatus comprising:

a piezoelectric substrate mainly containing lithium tantalate;

an interdigital transducer including a conductor formed on said substrate; and

a reflector including a conductor formed on said substrate,

wherein a surface rotated in a range of 34° to 41° from a crystal Y axis around a crystal X axis of the lithium tantalate is set as a surface of said substrate, a standardized electrode thickness (h/λ) obtained by standardizing a thickness h of a part of an electrode finger constituting a part of said reflector by a wavelength λ of a surface acoustic wave is set in a range of 0.01 to 0.05, and a duty ratio (w/p) of a part of the electrode finger decided based on a width w and an arraying cycle p of a part of the electrode finger is set to the value ranging from 0.6 to just below 1.0.

11. An acoustic wave apparatus comprising:

a piezoelectric substrate mainly containing lithium

tantalate;

an interdigital transducer including a conductor formed on said substrate; and

a reflector including a conductor formed on said substrate,

wherein a surface rotated in a range of 35° to 42° from a crystal Y axis around a crystal X axis of the lithium tantalate is set as a surface of said substrate, a standardized electrode thickness (h/λ) obtained by standardizing a thickness h of a part of an electrode finger constituting a part of said reflector by a wavelength λ of a surface acoustic wave is set in a range of 0.05 to 0.075, and a duty ratio (w/p) of a part of the electrode finger decided based on a width w and an arranging cycle of a part of the electrode finger is set to the value ranging from 0.6 to just below 1.0.

12. An acoustic wave apparatus comprising:

a piezoelectric substrate mainly containing lithium tantalate;

an interdigital transducer including a conductor formed on said substrate; and

a reflector including a conductor formed on said substrate,

wherein a surface rotated in a range of 36° to 43° from a crystal Y axis around a crystal X axis of the lithium tantalate is set as a surface of said substrate, a standardized electrode thickness (h/λ) obtained by standardizing a thickness h of a part of an electrode finger constituting a part of said reflector by a wavelength λ of a surface acoustic wave is set in a range of 0.075 to 0.1, and a duty ratio (w/p) of a part of the electrode finger decided based on a width w and an arraying cycle p of a part of the electrode finger is set to the value ranging from 0.6 to just below 1.0.